

Amendments to the Claims:

This listing of the claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1 (Previously Presented): A lithium ion secondary battery comprising:

a positive electrode capable of absorbing and desorbing lithium ion;

a negative electrode capable of absorbing and desorbing lithium ion;

a porous film interposed between said positive electrode and said negative electrode; and

a non-aqueous electrolyte;

wherein said porous film is adhered to a surface of at least one of said positive electrode and said negative electrode,

said porous film comprises a filler and a resin binder,

a content of said resin binder in said porous film is 1.5 to 8 parts by weight per 100 parts by weight of said filler, and

said resin binder comprises core-shell type rubber particles, and

said rubber particles have an adhesive surface portion including at least an acrylonitrile unit, an acrylate unit, or a methacrylate unit.

2-4 (Canceled)

5 (Original): The lithium ion secondary battery in accordance with claim 1, wherein said filler comprises a mixture of a large particle group and a small particle group, and an average particle size A of said large particle group and an average particle size B of said small particle group satisfy the formula (1):

$$0.05 \leq B/A \leq 0.25.$$

6 (Canceled)

7 (Original): The lithium ion secondary battery in accordance with claim 1, wherein said filler includes at least Al_2O_3 .

8-13 (Canceled)

14 (Original): The lithium ion secondary battery in accordance with claim 1, wherein said positive electrode and said negative electrode are wound interposing said porous film and a separator.

15 (Canceled)

16 (Previously Presented): A lithium ion secondary battery comprising:

a positive electrode capable of absorbing and desorbing lithium ion;

a negative electrode capable of absorbing and desorbing lithium ion;

a porous film interposed between said positive electrode and said negative electrode; and

a non-aqueous electrolyte;

wherein said porous film is adhered to a surface of at least one of said positive electrode and said negative electrode,

said porous film comprises a filler and a resin binder,

a content of said resin binder in said porous film is 1.5 to 8 parts by weight per 100 parts by weight of said filler,

said resin binder at least includes an acrylonitrile unit, an acrylate unit, or a methacrylate unit, and

an average pore size of micropores in said porous film obtained by a bubble-point method is 0.02 to 0.09 μm .

17 (Previously Presented): The lithium ion secondary battery in accordance with claim 16, wherein said resin binder comprises rubber particles of core-shell type, and said rubber particles have an adhesive surface portion.

18 (Previously Presented): The lithium ion secondary battery in accordance with claim 16, wherein said filler includes at least Al_2O_3 .

19 (Canceled)

20 (Previously Presented): The lithium ion secondary battery in accordance with claim 16, wherein said positive electrode and said negative electrode are wound interposing said porous film and a separator.

21 (Previously Presented): A lithium ion secondary battery comprising:

a positive electrode capable of absorbing and desorbing lithium ion;

a negative electrode capable of absorbing and desorbing lithium ion;

a porous film interposed between said positive electrode and said negative electrode; and

a non-aqueous electrolyte;

wherein said porous film is adhered to a surface of at least one of said positive electrode and said negative electrode,

said porous film comprises a filler and a resin binder,

a content of said resin binder in said porous film is 1.5 to 8 parts by weight per 100 parts by weight of said filler,

said resin binder at least includes an acrylonitrile unit, an acrylate unit, or a methacrylate unit, and

an elongating percentage of said porous film is 15% or more.

22 (Previously Presented): The lithium ion secondary battery in accordance with claim 21, wherein said filler comprises a mixture of a large particle group and a small particle group, and an average particle size A of said large particle group and an average particle size B of said small particle group satisfy the formula (1):

$$0.05 \leq B/A \leq 0.25.$$

23 (Previously Presented): The lithium ion secondary battery in accordance with claim 21, wherein said resin binder comprises rubber particles of core-shell type, and said rubber particles have an adhesive surface portion.

24 (Previously Presented): The lithium ion secondary battery in accordance with claim 21, wherein said filler includes at least Al_2O_3 .

25 (Canceled)

26 (Previously Presented): The lithium ion secondary battery in accordance with claim 21, wherein said positive electrode and said negative electrode are wound interposing said porous film and a separator.

27 (Previously Presented): A lithium ion secondary battery comprising:
a positive electrode capable of absorbing and desorbing lithium ion;
a negative electrode capable of absorbing and desorbing lithium ion;
a porous film interposed between said positive electrode and said negative electrode; and
a non-aqueous electrolyte;
wherein said porous film is adhered to a surface of at least one of said positive electrode and said negative electrode,
said porous film comprises a filler and a resin binder,

a content of said resin binder in said porous film is 1.5 to 8 parts by weight per 100 parts by weight of said filler, and

an amount of said resin binder is smaller in a first surface side where said porous film is in contact with said surface of said electrode, and larger in a second surface side opposite to said first surface side.

28 (Previously Presented): The lithium ion secondary battery in accordance with claim 27, wherein said resin binder comprises rubber particles of core-shell type, and said rubber particles have an adhesive surface portion including at least an acrylonitrile unit, an acrylate unit, or a methacrylate unit.

29 (Previously Presented): The lithium ion secondary battery in accordance with claim 27, wherein said filler includes at least Al_2O_3 .

30 (Previously Presented): The lithium ion secondary battery in accordance with claim 27, wherein said resin binder has a decomposing temperature of 250 °C or more.

31 (Previously Presented): The lithium ion secondary battery in accordance with claim 30, wherein said resin binder has a crystalline melting point of 250 °C or more.

32 (Previously Presented): The lithium ion secondary battery in accordance with claim 27, wherein said porous film comprises a single film, and an amount of said resin binder gradually increases from said first surface side toward said second surface side.

33 (Previously Presented): The lithium ion secondary battery in accordance with claim 27, wherein a content of said filler in the total of said filler and said resin binder contained in a surface portion of said second surface side of said porous film is 70 to 98 wt%, and a thickness of said surface portion is 20% of the thickness of said porous film.

34 (Previously Presented): The lithium ion secondary battery in accordance with claim 27, wherein said porous film comprises a plurality of films and a content of said resin binder in the total of said filler and said resin binder contained in a film positioned at said second surface side is higher than a content of said resin binder in the total of said filler and said resin binder contained in a film positioned at said first surface side.

35 (Canceled)

36 (Previously Presented): The lithium ion secondary battery in accordance with claim 27, wherein said positive electrode and said negative electrode are wound interposing said porous film and a separator.

37 (Previously Presented): A manufacturing method of the lithium ion secondary battery in accordance with claim 27, comprising the steps of:

(a) preparing a paste including 100 parts by weight of a filler, 1.5 to 8 parts by weight of a resin binder including at least an acrylonitrile unit, an acrylate unit, or a methacrylate unit, and a dispersion medium of said filler,

(b) applying said paste to a surface of at least one of a positive electrode and a negative electrode, and

(c) drying the paste applied on the surface of said electrode at a temperature of not less than 100 °C to not more than 180 °C.